9 SEDIMENT TRANSPORT AND MOUNTAIN HYDRODISTRIBUTION WORKS

Teachers: Chrysanthou V., Emeritus Professor
Maris F., Professor
Avgeris L. Candidate Doctor

The course covers the following topics:
1. Introduction. Physical properties of water
2. Flow characteristics
3. Fertile material properties. Sedimentation rate
4. Start moving fertile materials
5. Bed formations
6. Transportation of cargo bed. Transportation of cargo of suspended materials
7. Transport of total cargo
8. Localized erosion
9. Fertile transport models
10. Mountain hydronomy projects: Effect of fertile materials
11. Numerical examples
12. HEC-RAS Hydraulic Software
13. Topic (working at home) on the implementation of HEC-RAS

After successful completion of the course the student is able to:
- To apply basic knowledge of Hydraulics in the phenomenon of the transfer of fertile materials in watercourses and rivers.
- Evaluate grain curves.
- To possess the knowledge for the calculation of the sedimentation rate of suspended ferrals, critical flow rate and critical trolling voltage on the riverbed.
- To understand the effect of bed formations on the water flow and the transport of fertile materials on a river bed.
- To apply the appropriate equations for the calculation of load carrying bed and total load.
- Apply diffusion theory to the calculation of the transport of suspended ferments.
- Analyze the factors affecting local corrosion effect on bridge pedestals, downstream of barriers and open duct strictures, so as to be able to estimate the maximum depth of local corrosion.
- To apply the relationships between horizontal lengths, flow depths, ferryl densities and ferryl grains diameters to the physical models of the laboratory.
- To combine knowledge to design and dimensionalize a sedimentation tank.
- Evaluate the impact of fertile materials on mountain water projects.
- To implement the HEC-RAS hydraulic software with slide transfer.

Teaching Mode: 3 hours suggestion-exercises / week

10 HYBRID MODELS (STATISTICAL AND FUZZY) IN HYDRAULIC ENGINEERING

Teachers: Spiliotis M. Assoc. Professor
Papadopoulos B. Professor

The course covers the following topics:
1. Fuzzy logic and sets